REMARKS/ARGUMENTS

Various claims are being amended as shown above. The claim amendments clarify the claim language and are not intended to limit the scope of the claims, unless the claim language is expressly quoted in the following remarks to distinguish over the cited art.

In section 4 of the office action, claims 1-3, 6, 11-13, 16, 21-23, and 26 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Chan, et al. (USP 5,822,772). Applicants respectfully traverse the rejection.

Chan is directed to a memory controller 10, where an incoming memory access command enters the queue 111 and the incoming memory access command is then dispatched by the dispatch logic 121 to one of the four memory command queues Q1, Q2, Q3, and Q4. Figure 6 shows incoming memory access commands 1 to 11 as dispatched among the queues Q1 to Q4. The memory controller 10 includes a selection logic 131 that picks one of the queues Q1-Q4 to access the DRAM, where a command in the selected queue will issue a row address selection (RAS) and a column address selection (CAS) to the DRAM. The selection logic 131 will switch its selection from an active queue to an inactive queue when a page miss occurs (e.g., in Figure 6, selection switches from Q1 to Q2 in step 4 since there is a page miss existing between command 2 and command 3).

In Chan, the memory controller 10 receives the incoming memory access command by use of queue 111. In contrast, independent claim 1 distinguishes over Chan at least by reciting, a method including "*receiving, by an*

arbiter, requests for accessing the shared resources from one or more requestors, wherein a plurality of requests may be received from each requestor", and such recited features are not disclosed or suggested in Chan. Furthermore, Chan does not disclose an arbiter that receives requests, and Chan instead discloses a memory controller 10 that receives memory access commands.

In Chan, the <u>memory controller 10</u> has queues Q1-Q4 that stores memory access commands. When a queue is selected, then the memory access command in the queue will issues a row address selection and a column address selection to a DRAM. In contrast, independent claim 1 distinguishes over Chan at least by reciting, a method including *"arbitrating, by the <u>arbiter</u>, between the plurality of requests in such a way so that the plurality of requests from each requestor may be re-ordered in non-FIFO order"*, and such recited features are not disclosed or suggested in Chan. Furthermore, Chan does not disclose an arbiter that arbitrates between the plurality of requests, and Chan instead discloses a memory controller 10 that has a queue that is selected when a memory access command will trigger the memory access operation.

In Chan, the <u>memory controller 10</u> has a selection logic that selects one of the queues Q1-Q4 that stores memory access commands, so that when a queue is selected, then the memory access command in the queue will issues a row address selection and a column address selection to a DRAM. In contrast, independent claim 1 distinguishes over Chan at least by reciting, a method including *"selecting, by the <u>arbiter</u>, a next request to access the shared resources based on the re-ordering of requests"*, and such recited features are not disclosed or suggested in Chan.

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Furthermore, Chan does not disclose an arbiter that selects the next request to access the shared resources based on the re-ordering of the requests, and Chan instead discloses a memory controller 10 that has a selection logic that selects one of the queues Q1-Q4 that stores memory access commands.

Independent claim 1 further distinguishes over Chan at least by reciting, a method including "*communicating an information from the* arbiter *to a* memory controller, *where the memory controller accesses the shared resources and the information permits the memory controller to service the next request selected by the arbiter*", and such recited features are not disclosed or suggested in Chan. Furthermore, Chan does not disclose an arbiter that receives request for accessing the shared resources and that communicates an information to the memory controller to permit the memory controller to service the next request that is selected by the arbiter, as substantially recited in claim 1.

Thus, Chan does not in any way disclose or suggest many of the features recited in claim 1.

Accordingly, claim 1 is patentable over Chan.

Independent claims 11 and 21 are each patentable over Chan for at least for the same reasons that claim 1 is patentable over the same reference.

Claims 2-3, 6, 12-13, 16, 22-23, and 26 depend from one of claims 1, 11, and 21 and are each patentable over Chan for at least the same reasons that their respective base claim is patentable over the same reference.

Each of the claims 2-3, 6, 12-13, 16, 22-23, and 26 further distinguishes over Chan by reciting additional features.

Accordingly, each of the claims 1-3, 6, 11-13, 16, 21-23, and 26 are each patentable over Chan.

For the above reasons, Applicant requests reconsideration and withdrawal of this rejection under 35 U.S.C. §102.

In section 6 of the office action, claims 4, 14, and 24 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Chan in view of Hagersten, et al. (USP 5,950,226). Applicants respectfully traverse the rejection.

The Examiner correctly admits that Chan does not teach transmitting the identification tag of an access command and a strobe signal to a requestor that sent the selected request. In an attempt to overcome the deficiency of Chan, the Examiner relies on Hagersten in an attempt to show various alleged features.

Dependent claim 4 distinguishes over the Chan-Hagersten combination at least by reciting, a method including "*initiating servicing of the selected request; and transmitting the identifier tag <u>associated with the selected request</u> and a strobe signal to a requestor that sent the selected request*", and such recited features are not disclosed or suggested in Chan or Hagersten, whether Chan or Hagersten are considered singly or in combination. In particular, Hagersten does not disclose an identifier tag that is associated with the selected request.

Furthermore, claim 4 depends from claim 1 and is patentable over Chan and Hagersten for at least the same reasons that base claim 1 is patentable over the same combination.

Claim 4 further distinguishes over the Chan-Hagersten combination by reciting additional features.

Furthermore, it would not have been obvious to modify Chan with Hagersten because the proposed combination would require a substantial reconstruction and redesign of the elements disclosed in the primary reference. (See MPEP 2143.01). For example, there is no suggestion in the references on how to modify the elements in Chan so that the memory controller 10 can function with the elements in Hagersten. Furthermore, Chan and Hagersten do not suggest or disclose any interface circuitry, modules, systems, methods, and/or techniques that permit the elements disclosed in Chan to function with the elements disclosed in Hagersten. Therefore, the modification of Chan, as suggested in the Office Action, is improper.

Accordingly, claim 4 is patentable over the combination of Chan and Hagersten, whether considered singly or in combination.

Claims 14 and 24 are each patentable over the Chan-Hagersten combination for at least the same reason that claim 4 is patentable over the same combination.

For the above reasons, Applicant requests reconsideration and withdrawal of this rejection under 35 U.S.C. §103.

In section 7 of the office action, claims 5, 7-10, 15, 17-20, 25, and 27-30 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Chan in view of Hagersten, et al. as applied to claims 4, 14, and 24, and further in view of Microsoft Computer Dictionary, Fourth Edition. Applicants respectfully traverse the rejection.

The Examiner correctly admits that Chan in view of Hagersten does not disclose a tag containing additional data related to the request. In an attempt to overcome the deficiency of Chan in view of Hagersten, the Examiner relies on the above Microsoft Computer Dictionary in an attempt to show various alleged features.

Claims 5, 7-10, 15, 17-20, 25, and 27-30 depend from one of claims 1, 11, and 21 and are each patentable over the Chan-Hagersten-Microsoft Computer Dictionary combination for at least the same reasons that their respective base claim is patentable over the same combination.

Each of the claims 5, 7-10, 15, 17-20, 25, and 27-30 further distinguishes over Chan by reciting additional features.

Furthermore, it would not have been obvious to modify Chan with Hagersten and the Microsoft Computer Dictionary because the proposed combination would require a substantial reconstruction and redesign of the elements disclosed in the primary reference. (See MPEP 2143.01). For example, there is no suggestion in the references on how to modify the elements in Chan so that the memory controller 10 can function with the elements in Hagersten and Microsoft Computer Dictionary. Furthermore, Chan and Hagersten and Microsoft Computer Dictionary do not suggest or disclose any interface circuitry, modules, systems,

methods, and/or techniques that permit the elements disclosed in Chan to function with the elements disclosed in Hagersten and Microsoft Computer Dictionary. Therefore, the modification of Chan, as suggested in the Office Action, is improper.

Accordingly, each of the claims 5, 7-10, 15, 17-20, 25, and 27-30 is patentable over the Chan and Hagersten and Microsoft Computer Dictionary, whether considered singly or in combination.

For the above reasons, Applicant requests reconsideration and withdrawal of this rejection under 35 U.S.C. §103.

For the above reasons, Applicant respectfully requests allowance of all pending claims.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is respectfully requested to specifically point out where such teachings may be found.

CONTACT INFORMATION

If the Examiner has any questions or needs any additional information, the Examiner is invited to telephone the undersigned attorney at (805) 681-5078.
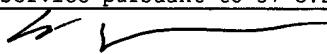
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